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10/685,135	10/14/2003	James M. Minor	10030524-1	4483

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EXAMINER	
MOTSINGER, SEAN T	
ART UNIT	**PAPER NUMBER**
2624	
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07/13/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Interview Summary	Application No.	Applicant(s)	
	10/685,135	MINOR, JAMES M.	
	Examiner	Art Unit	
	Sean Motsinger	2624	

All participants (applicant, applicant's representative, PTO personnel):

(1) *Sean Motsinger*. (3) *Jingge Wu*.

(2) *Alan Cannon*. (4)_____.

Date of Interview: *03 July 2007*.

Type: a)☒ Telephonic b)☐ Video Conference
c)☐ Personal [copy given to: 1)☐ applicant 2)☐ applicant's representative]

Exhibit shown or demonstration conducted: d)☐ Yes e)☒ No.
If Yes, brief description: _____.

Claim(s) discussed: *1*.

Identification of prior art discussed: *Shams US 6,731,781 and Chen US 6,245,517*.

Agreement with respect to the claims f)☐ was reached. g)☒ was not reached. h)☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: *Proposed amendments to claim 1 (see attached) were discussed no agreement was reached on whether they over come the prior art. There was also a generic discussion of the diffrences disclosed in the specification with relation to prior art's use of what applicant calls a "cookie cutter" method, however no claim language was agreed upon*.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

Examiner's signature, if required

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Date:	June 26, 2007
To:	U.S. Patent and Trademark Office Art Unit 2635 **Attention: Examiner Motsinger**
Facsimile No.:	571-270-2237
From:	Alan Cannon
Re:	Proposal for Discussion During Telephone Interview
Message:	Please see attached. Thank you, Alan Cannon

Total number of pages, including this cover sheet: 12

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Application Serial No. 10/685,135
Atty Docket No. 10030524-1
ATTN; Exr. Sean Motsinger, Art Unit 2624

DRAFT PROPOSAL TO BE USED FOR DISCUSSION DURING TELEPHONE INTERVIEW
Application Serial No. 10/685,135 (10030524-1 – AGIL-113)
ATTENTION: EXAMINER SEAN T. MOSINGER
ART UNIT 2624

1. (Currently Amended) A method for obtaining quality output signals from a chemical array image, said method comprising the steps of:

rank-ordering the output signals from the chemical array image according to signal magnitude; and

identifying a subset of the rank ordered output signals which are ~~representative of~~ the quality output signals, wherein locations of pixels in the image from which the ~~identified~~ quality output signals are outputted can be located anywhere within the chemical array image ~~geometrically independently of a presumed feature location~~.

2. (Currently Amended) The method of claim 1, wherein said chemical array image is of a microarray feature and background region.

3. (Original) The method of claim 1 wherein the chemical array image is subdivided into pixels, and each ranked output signal is a signal representing output from a pixel.

4. (Original) The method of claim 1, wherein said identifying a subset is performed using a filter.

5. (Original) The method of claim 1, wherein the chemical array image is broken down in to subunits, and coordinates of a location of each subunit of the chemical array image are maintained with the signal values even after said rank ordering.

6. (Original) The method of claim 1, further comprising plotting the output signal magnitudes versus rank order numbers on a two-dimensional plot.

7. (Currently Amended) The method of claim 6, further comprising determining a slope of the plotted subset of the rank ordered output signals which are ~~representative of~~ the quality output signals, and determining a relative quality of the subset of quality output signals based on said slope.

8. (Currently Amended) The method of claim 1, further comprising identifying a residue subset comprising a subset of the rank ordered output signals having magnitudes larger than the quality output signals subset.

9. (Original) The method of claim 1, further comprising identifying a background subset comprising a subset of the rank ordered output signals having the lowest magnitudes.

10. (Currently Amended) The method of claim 9, further comprising identifying a corona subset comprising a subset of the rank ordered output signals having transitional magnitude values between the values of said background subset and said subset having the ~~high~~ quality output signals.

11. (Original) The method of claim 5, further comprising identifying banding of subunits by comparing the rank order of the subunit signal outputs with said coordinates of the subunits.

12. (Previously Presented) The method of claim 11, further comprising producing diagnostics based on results of said identifying banding.

13. (Original) The method of claim 12, wherein said producing diagnostics includes at least one of estimating a radius of at least one of said subsets, and computing a radius of gyration of at least one of said subsets.

14. (Previously Presented) The method of claim 10, wherein said producing diagnostics includes at least one of calculating a mean, median or other estimate of signal

values in at least one of said subsets, and calculating a standard deviation of signal values in at least one of said subsets.

15. (Currently Amended) The method of claim 9, further comprising subtracting an average signal value of said background subset from an average value of said subset having the ~~representative of the high~~ quality output signals.

16. (Original) The method of claim 5, wherein said steps are carried out for two channels or colors of subunits, said method further comprising comparing the output signals of the first channel to the second channel to check for misalignment of the channels.

17. (Original) The method of claim 1, wherein said steps are carried out for two channels or colors of signals, said method further comprising comparing signals between the two channels according to rank order, not physical location on the chemical array image.

18. (Original) A method comprising forwarding a result obtained from the method of claim 1 to a remote location.

19. (Original) A method comprising transmitting data representing a result obtained from the method of claim 1 to a remote location.

20. (Original) A method comprising receiving a result obtained from a method of claim 1 from a remote location.

21. (Original) The method of claim 1, wherein the chemical array image is taken from a microarray.

22. (Original) The method of claim 1, further comprising the steps of:

comparing an average signal value from a first predefined subset made up of the lowest signal values in the rank ordering with an average signal value from a second predefined subset made up of the high signal values in the rank ordering to determine whether a predefined signal difference level is present.

23. (Original) The method of claim 1, further comprising the steps of:

providing a microarray divided into a grid of regions estimated to each contain a feature, wherein each said region is broken down into subunits that cover an entire surface of the region and only a portion of the subunits cover an area on which the feature may exist; and

reading all subunits of a region to obtain an output signal for each said subunit; wherein said rank ordering and identifying are performed with regard to the region having been read.

24. (Original) The method of claim 23, wherein said subunits comprise pixels.

25. (Original) The method of claim 23, further comprising iterating said reading and rank ordering steps for at least one additional region.

26. (Original) The method of claim 10, further comprising identifying two corona section locations to be used for comparison with two corona sections identified in a second channel of a two channel array, to check color alignment.

27. (Original) The method of claim 23, further comprising locating said grid to define said regions.

28. (Original) The method of claim 26, wherein said locating comprises providing at least one mathematical probe to converge on the features of the array, calculating a distance between features having been converged on, and calculating a size of said regions said size being sufficient to completely contain a single feature.

29. (Currently Amended) A geometrically independent method of selecting quality signals from a microarray feature, said method comprising the steps of:

reading output signals over the entire surface of a feature and over a predefined background region surrounding the feature;

maintaining coordinates of each location from where each output signal originated during said reading, in association with the read output signals;

rank ordering the output signals according to signal magnitude; and

identifying a subset of the rank ordered output signals which are ~~representative of~~ the high quality output signals, wherein locations from which the subset of the high quality output signals originated can be anywhere in the feature or predefined background region ~~are identified geometrically independently of the locations from which the high quality signals originated~~.

30. (Currently Amended) A system for obtaining quality signals from a chemical array image, said system comprising:

means for rank ordering the output signals from reading the chemical array image, according to signal magnitude; and

means for identifying a subset of the rank ordered output signals which are ~~representative of~~ the quality output signals, wherein locations from which the subset of the quality ~~rank ordered~~ output signals originated can be anywhere in the chemical array image ~~identified are identified geometrically independently of locations of pixels of the image from which the signals originated~~.

31. (Original) The system of claim 30, wherein the chemical array image is subdivided into subunits, and wherein each subunit is represented by an output signal.

32. (Original) The system of claim 31, wherein said subunits comprise pixels.

33. (Original) The system of claim 30, further comprising means for reading output signals from the chemical array image.

34. (Original) The system of claim 30, further comprising means for maintaining coordinates of a location from which each signal originated on the chemical array image, in association with said output signals, even after said rank ordering.

35. (Original) The system of claim 30, further comprising means for plotting the output signal magnitudes versus rank order numbers on a two-dimensional plot.

36. (Currently Amended) The system of claim 30, further comprising means for identifying a residue subset comprising a subset of the rank ordered output signals having magnitudes larger than the quality output signals subset.

37. (Original) The system of claim 30, further comprising means for identifying a background subset comprising a subset of the rank ordered output signals having the lowest magnitudes.

38. (Original) The system of claim 37, further comprising means for identifying a corona subset comprising a subset of the rank ordered output signals having transitional magnitude values between the values of said background subset and said subset having the quality output signals.

39. (Original) The system of claim 34, further comprising means for identifying banding of signals by comparing the rank order of the signal outputs with said coordinates associated with the signals.

40. (Original) The system of claim 39, further comprising means for producing diagnostics based on results of said banding identification.

41. (Original) The system of claim 34, further comprising means for comparing said output signals with output signals of a second channel to check for misalignment of channels of a two channel system.

42. (Original) The system of claim 41, wherein said comparison is based upon rank order of the output signals of the two channels, not physical location of the subunits on the region.

43. (Original) The system of claim 30, further comprising means for comparing an average signal value from a first predefined subset made up of the lowest signal values in the rank ordering with an average signal value from a second predefined subset made up of the high signal values in the rank ordering to determine whether a predefined signal difference level is present.

44. (Original) The system of claim 38, further comprising means for identifying two corona section locations to be used for comparison with two corona sections identified in a second channel of a two channel array, to check color alignment.

45. (Original) The system of claim 30, further comprising means for locating a grid to define regions on the chemical array image, each region designed to include a feature, and wherein said means for rank ordering and means for identifying process the chemical array image a region at a time.

46. (Currently Amended) A computer readable medium carrying one or more sequences of instructions for obtaining quality output signals from a chemical array image, wherein execution of one or more sequences of instructions by one or more processors causes the one or more processors to perform the steps of:

rank ordering the output signals according to signal magnitude; and

identifying a subset of the rank ordered output signals which are ~~representative of~~ the quality output signals, wherein locations from which the subset of the quality ~~rank ordered~~ output signals originated can be anywhere in the chemical array image ~~identified are identified geometrically independently of locations of pixels of the image from which the identified signals originated~~.

47. (Original) The computer readable medium of claim 46, wherein the chemical array image is subdivided into regions, and said rank ordering and identifying are performed upon a regional basis.

48. (Original) The computer readable medium of claim 47 wherein each region is subdivided into subunits, each said output signal being associated with one of said subunits, respectively.

49. (Original) The computer readable medium of claim 48 wherein said subunits comprise pixels.

50. (Original) The computer readable medium of claim 46 wherein coordinates of locations on the chemical array image from where said output signals were produced are maintained with the signal values even after said rank ordering.

51. (Original) The computer readable medium of claim 46, wherein execution of one or more sequences of instructions by one or more processors causes the one or more processors to perform the further step of: plotting the output signal magnitudes versus rank order numbers on a two-dimensional plot.

52. (Previously Presented) A method for obtaining quality output signals from a chemical array image, said method comprising the steps of:

rank ordering the output signals from the chemical array image according to signal magnitude;

plotting the output signal magnitudes versus rank order numbers on a two-dimensional plot;

determining a slope of the plotted subset of the rank ordered output signals which are representative of the quality signals, thereby identifying a subset of the rank ordered output signals which are representative of the quality signals; and

determining a relative quality of the subset of quality signals based on said slope.

53. (Previously Presented) A method for obtaining quality output signals from a chemical array image, said method comprising the steps of:

rank ordering the output signals from the chemical array image according to signal magnitude, wherein the chemical array image is broken down in to subunits, and coordinates of a location of each subunit of the chemical array image are maintained with the signal values even after said rank ordering;

identifying a subset of the rank ordered output signals which are representative of the quality signals;

identifying banding of subunits by comparing the rank order of the subunit signal outputs with said coordinates of the subunits; and

producing diagnostics based on results of said identifying banding, wherein said producing diagnostics includes at least one of estimating a radius of at least one of said subsets, and computing a radius of gyration of at least one of said subsets.

54. (Previously Presented) A method for obtaining quality output signals from a chemical array image, said method comprising the steps of:

rank ordering the output signals from the chemical array image according to signal magnitude, wherein the chemical array image is broken down into subunits, and coordinates of a location of each subunit of the chemical array image are maintained with the signal values even after said rank ordering; and

identifying a subset of the rank ordered output signals which are representative of the quality signals;

wherein said steps are carried out for two channels or colors of subunits, said method further comprising comparing the output signals of the first channel to the second channel to check for misalignment of the channels.

55. (Previously Presented) A method for obtaining quality output signals from a chemical array image, said method comprising the steps of:

rank ordering the output signals from the chemical array image according to signal magnitude; and

identifying a subset of the rank ordered output signals which are representative of the quality signals, wherein said steps are carried out for two channels or colors of signals, said method further comprising comparing signals between the two channels according to rank order, not physical location on the chemical array image.

56. (Previously Presented) A method for obtaining quality output signals from a chemical array image, said method comprising the steps of:

rank ordering the output signals from the chemical array image according to signal magnitude;

identifying a subset of the rank ordered output signals which are representative of the quality signals;

identifying a background subset comprising a subset of the rank ordered output signals having the lowest magnitudes; and

identifying a corona subset comprising a subset of the rank ordered output signals having transitional magnitude values between the values of said background subset and said subset having the high quality signals; and

identifying two corona section locations to be used for comparison with two corona sections identified in a second channel of a two channel array, to check color alignment.

57. (Previously Presented) A system for obtaining quality signals from a chemical array image, said system comprising:

means for rank ordering the output signals from reading the chemical array image, according to signal magnitude;

means for identifying a subset of the rank ordered output signals which are representative of the quality signals;

means for identifying a background subset comprising a subset of the rank ordered output signals having the lowest magnitudes;

means for identifying a corona subset comprising a subset of the rank ordered output signals having transitional magnitude values between the values of said background subset and said subset having the quality signals; and

means for identifying two corona section locations to be used for comparison with two corona sections identified in a second channel of a two channel array, to check color alignment.

Support for the substantive amendments can be found in paragraphs [0073]-[0080]. Paragraph [0073] states that, rather than trying to locate the exact positions of the features and then reading the signals from within those identified locations, the present invention reads substantially all of the information from the pixels over the microarray, and then determines where the best signals are being generated.

Paragraph [0079] discloses: "All pixels are read and processed, including those that only represent background surrounding a feature and do not output a signal representative of sequences within the feature. Each pixel representative of the feature encapsulates a population of sequences, both bad and good, which the present invention processes and ranks to determine the best signal from a feature. Thus, the present invention does not assume any kind of geometry of the feature or spot."

Paragraph [0080] discloses that the present invention "does not miss good sequences that are bound/hybridized with the best members of the labeled-target population, regardless of where they are located within the region."